Name _____

Date _____

<u>Title</u>: Contour Field Map Lab of Blue Mountain

<u>Purpose</u>: This lab is to introduce students to understanding and building a contour map using layers of different elevations. This lab is to see if students can follow directions

<u>Materials</u>: Paper, Pencil, and Contour Kit with seven elevations and wooden dowel. Two pieces of blank paper

<u>Calculations:</u> Gradient = <u>Change in elevation</u>

Distance

Procedure A: Part I Map

1) Obtain an elevation kit and with one partner. Each kit should have seven blue pieces and one wooden dowel.

2) Build the elevations by sliding them on the dowel with the biggest on bottom and the smallest on the top. You may have to flip and rotate the pieces so they match. There should not be any pieces hanging over the edge of a piece below it.

3) There are V- shaped notches carved into the side of each piece. These notches should line up when the elevations are completed.

For the next part of the procedure, each student should follow so they have their own map.

4) Take one of the blank sheets of paper and place it so the longest side is at the top and bottom. Mark a dot roughly in the middle of it. This is your central point. This is where the wooden dowel goes through your elevation mountain. This will be your centering point.

5) Take off the bottom piece of elevation, center it on the piece of paper with the V- Shaped notches faced straight toward the top of the paper (Due North) and trace around the outside (perimeter) of the blue foam elevation. Trace carefully and make sure you have the V- shaped notch traced accurately.

6) Take the next piece off the bottom of the mountain and center it carefully on the paper making sure the V-shape is straight toward the top. Make sure you have it place correctly just like the mountain was built and the V – shaped notches are lined up. Then trace the outline boundary of the blue foam shape. **NONE** of your lines should touch or cross.

7) Repeat the sixth procedure until all the blue foam elevations are traced on your paper. You now have a contour map. The next steps are for labeling your maps

8) Label the at the top of your map <u>BLUE MOUNTAIN</u>

9) Each contour line represents 10 meters. This is the *contour interval*. Label the largest contour line (The farthest from your centering point) Zero and then label the rest, going up in 10 meter intervals.

10) Draw a horizontal (left to right) line through the middle of your mountain, make sure it goes through your center point. Label the left side of the line A and the right side B

11) Starting at the Top of Blue mountain draw a line that connects the middle of those V-Shaped notches in each of your lines all the way to the bottom of your mountain or your last line (the furthest one out form the centering point). This represents a stream that is running down the side of the mountain. <u>Please label this Blue Stream</u>.

<u>Procedure B</u>: Part II Profile (Each teacher has his or her own method follow your teacher's method or follow the procedure below.)

- Take your profile sheet, (the back of your question sheet) and place the bottom along the horizontal line you drew through your mountain.
- 2) You and your partner need to construct a profile of the map.
- With your paper lined up, at the bottom of the profile paper (it should be on top) mark and label the elevation of each contour line that meets (touches) the bottom of your paper.
- Create your vertical scale. (Label the lines on the vertical scale remember that you go one higher than your highest and one lower than your lowest)
- Plot your points matching like elevations on your vertical and horizontal scales.
- 6) Connect your points Now you have a profile of your blue Mountain

Discussion Questions: Please answer in complete sentences

1. What do the contour lines represent?

2. What is the contour interval?

3. What direction is the river flowing if we assume the top of the map is North?

4. Look at Blue River that you drew on your map. Can the V- Shape tell you what direction the river is flowing, How?

5. How can a person tell if the gradient is gentle or steep?

6. On your map you should have a dot in the center of your mountain and a Line marked A-B. Calculate the gradient of the left side of the mountain using the following formula and the instructions below.

A) We are going to use a scale that <u>One-centimeter on our rulers equals one kilometer</u> on the map.

B) Measure from the left side of your map (side A). Start on the lowest contour line (0) and measure to the nearest tenth of a centimeter to the dot in the center of the mountain.C) This is your distance. It is the bottom value of the gradient formula.

D) To find change in elevation, count the number of contour lines from the dot to the (A), and multiply it by the contour interval. This is the top number for your gradient formula. F) Now calculate the gradient.

Gradient = <u>Change in elevation (m)</u> Distance (km)

Show work and circle answer here with *proper units*